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23 JAN 1967

MEMORANDUM FOR: Chief, Development Staff, NPIC

25X1A ATTENTION : [REDACTED]
SUBJECT : Proposed Contract on Aerial Photography
in Agriculture

25X1A 1. This memorandum is in response to your oral request to [REDACTED] Chief of our Agriculture Branch, for ORR recommendations relative to a proposed NPIC contract on the use of aerial photography in agriculture.

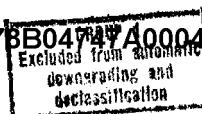
2. In view of (a) the progress and current plans of the ORD contract and (b) the longer range joint USDA/NASA effort in remote sensing of agricultural resources, ORR believes that any additional developmental research should be more narrowly defined than envisioned in NPIC-ORR discussions about a year ago. ORR's views on the scope of such analysis, whether done within NPIC or on external contract, are elaborated on in paragraph 5, below.

25X1A 3. Early last spring at the request of NPIC, ORR reviewed a Design Objective paper on the above subject and recommended that NPIC ask appropriate contractors to submit proposals in response to this Design Objective. At that time ORR had not been informed of the scope and apparent progress being made under an ORD contract. In mid-summer ORR received a copy of the work done during 1965 and in very recent months has received preliminary reports, both written and oral, on progress in 1966. The ORD contractor, utilizing multispectral filtration photography, categorically states that "the feasibility of using aerial photography to estimate yield given suitable photography has been established." The choice of the three crops for study -- rice, wheat and sugar cane -- is good and the locations have been generally satisfactory, with the exception of wheat. We have suggested to ORD that we would like to see wheat studies conducted in marginal rainfall areas of the [REDACTED] where drought frequently becomes the limiting factor in yields -- as is often the case in the wheat areas of the USSR and China. ORD has indicated that during the coming growing season it may be possible to conduct a preliminary test of the procedures that have been developed by undertaking estimation of the yield of wheat over a [REDACTED] area rather than only in the relatively small areas now being photographed and analyzed.

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4. ORR understands from contacts with the Department of Agriculture that there are a number of joint USDA/NASA projects engaged in research on the general subject of multispectral sensing of agricultural resources -- e.g., projects at [REDACTED]

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In general, the overall objectives in these programs are to determine techniques and potential uses of orbital platforms for maintaining an inventory on agricultural resources. No concentrated efforts are currently underway to determine crop yields although this is certainly planned as an eventual goal.

5. ORR has been receiving support from the CIA detachment of NPIC, in response to requirements levied through the Reconnaissance Group of the DDI Collection Guidance Staff. This support has included qualitative appraisal of flood damage to crops in North China and more recently a program to analyze photography of key reservoirs in Communist China in an attempt to correlate water levels with known rainfall data. A number of NPIC personnel have expressed the view that it may be possible, using presently available black and white satellite photography, to refine the above qualitative support and develop a methodology for quantitative estimation of crop production indirectly through activities related to agricultural production. Although ORR has some doubts that this approach will permit quantification of the crop, we feel that developmental research of this type may be useful in improving qualitative evaluation of crop conditions from this source of intelligence. ORR does not consider it appropriate, however, to recommend whether such research be done on external contract or within NPIC. ORR strongly urges, however, that an effective three-way coordination, NPIC-ORD-ORR, continually be implemented for a mutual exchange of ideas on this subject and elimination of unnecessary duplication of effort.

FOR THE DIRECTOR OF RESEARCH AND REPORTS:

[REDACTED]
Executive Assistant
Research and Reports

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